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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Irving Ames
Serial Number	:	09/329,734
Filing Date	:	June 10, 1999
Examiner	:	Alexander Eisen
Group Art Unit	:	2674
For	:	IMPROVEMENT IN POSITIONING OF A COMPUTER MOUSE

Hon. Commissioner of Patents and Trademarks
Post Office Box 1450
Alexandria, VA 22313-1450

ON APPEAL -- APPELLANT'S BRIEF

To Honorable Members of the Board:

Three copies of this Brief are timely submitted within two (2) months of the April 11, 2005 date on which the Notice of Appeal was received by the United States Patent and Trademark Office (USPTO). The Commissioner is authorized to charge any fees due pursuant to 37 C.F.R. 1.17(c) or any other provision of same to Deposit Account 50-0510.

1. REAL PARTY IN INTEREST

The real party in interest in this application is assignee INTERNATIONAL BUSINESS MACHINES CORPORATION. The inventor/assignor is Irving Ames who is employed at assignee's Thomas J. Watson Research Center, Yorktown Heights, NY 10598.

2. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellant, Appellant's legal representative or assignee which will directly affect or be directly affected by or have a bearing on this Board's decision in the pending appeal.

3. STATUS OF CLAIMS

In the course of the prosecution of this application 21 claims have been presented. Claims 1 to 5, 12, 13, 18 and 19 have been canceled. Accordingly Claims 6 - 11, 14 - 17, 20 and 21 are pending, are the claims appealed and thus, are the claims subject to consideration by this Board. Claims 20 and 21 are independent claims. Claims 6 to 10 are dependent upon Claim 20 and Claims 14 - 17 are dependent upon Claim 21. The substantive content of Claim 7 is as originally filed, and the status of Claims 6, 8 - 11, 14 - 17, in each instance is "Previously Presented."

4. STATUS OF AMENDMENTS

A "Final Rejection" was issued in this application on December 7, 2005. An amendment was filed March 3, 2005 in which Claims 11, 20 and 21 were amended with the balance of the claims remaining as "Previously Presented." The Examiner issued an Advisory Action on March 17, 2005 in which he maintained his rejections of "Claims 6-11, 14-17, 20 and 21." The Examiner also stated in the Advisory Action that "For purposes of Appeal, the proposed amendment (i.e., the one filed March 3, 2005) will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended." The request for reconsideration of the patentability of the claims was considered but does not place the application in condition for allowance because of the rejections found in the Official Action dated December 7, 2004. Thus the Examiner's final rejection assertions are the basis for the non-allowance of the pending claims.

5. SUMMARY OF THE INVENTION

Formerly, when seeking to control a cursor through a display interface of a computer a number of considerations were operating to make it difficult to accurately position the cursor. In the art, a cursor positioning device called a mouse evolved which fits in the hand of the user and which has a rotatable element on the under side that rotates against the planar surface on

which the mouse contacts when the mouse is moved. The mouse internally has circuitry that provides and transmits signals correlated with the rotatable element movement that results in movement of the cursor or pointer on the display screen.

Switching elements that deliver operating system signals through the mouse-display interface can impose psychomotor limitations for a user. The switches are positioned to be under an adjacent finger when the mouse is in the hand of the user but the actuation force for each switch by the respective finger has force components in more than one direction that can introduce a movement force on the mouse that may disrupt the position of the mouse and in turn the cursor. Other users may have other types of hand coordination problems, making it difficult for them to reach and retain targeted locations with a mouse, Complexity is further added by operating system requirements for such actuation features as "double clicks". Complexity is still further added by the fact that some users as their experience and skills change could benefit by having some adjustability in the movement response of the mouse.

Operating system controls that are installed to introduce system biases favoring a particular user also recognize that accurate cursor positioning directly to a particular desired location is inefficient because when the user is able to position the cursor close to the desired location overshoot and undershoot make precise positioning of the cursor difficult. Maneuvering the cursor directly to the desired location must be done with care, requiring slower action, which in turn affects productivity and efficiency.

In the present invention, positioning control of a computer mouse is improved by adding a finely adjustable frictional force component to relative motion in the plane of the mouse-supporting surface, or mouse pad, system. The added frictional force component operates to produce a drag component that dampens any forces that would tend to upset the selected mouse position. The frictional force component may be provided, for example by additional small localized weight increments, the effect of a magnetic field or a change in coefficient of friction between parts that move in relation to each other.

In order to illustrate various forms of the present invention, Applicants included drawings at the time of filing the application which are enclosed and attached hereto. Figures 1 and 2 are perspective and side views respectively of a typical prior art computer mouse. Figures 3 and 4 are each a schematic side view of different embodiments of the invention illustrating the addition of positioned mouse housing weight increments. Figures 5 and 6 are each a schematic side view of different embodiments of the invention illustrating the use of a magnetic member on the mouse housing providing attraction to a mouse pad type supporting surface containing a ferromagnetic sheet member. Figure 7 is a schematic side view of an embodiment of the invention illustrating the addition of increased friction surfaces to the sliding support faces which in turn increase the static and kinetic coefficients of friction between a mouse and a mouse pad.

An adjustable frictional force component is added to the mouse-mouse pad type supporting surface that improves the positioning control of the mouse by introducing an adjustable drag-type component to the mouse movement in the plane of the mouse-mouse pad interface.

Control in the positioning of a computer mouse is improved by adding a finely adjusted frictional force component to relative motion in the plane of the mouse - supporting surface, or mouse pad, system. The added frictional force component operates to produce a drag component that dampens the movement. The added frictional force component may be provided by additional small localized weight increments, the effect of a magnetic field, or a change in coefficient of friction between parts that move in relation to each other. Examples of the frictional force component addition is a result of at least one addition taken from the group of :

the addition of incremental weights totaling about 20 - 50% of the weight of the mouse,

the addition of a combination of a magnetic member positioned on the surface of the mouse that is adjacent to the surface of the mouse pad,

the addition of a ferromagnetic sheet positioned in the mouse pad and,

the addition of an increase in coefficient of friction between protrusions on the surface of the mouse member that are adjacent to the mouse pad.

At the present state of the art, the weight of a mouse can be about 100 grams or about 3 ½ ounces. But at that weight, while light enough to avoid hand fatigue, difficulty in positioning can be encountered.

In accordance with the invention, a fine adjustment in frictional force between the mouse and the supporting surface on which it rests can make a difference between improving positioning accuracy while avoiding hand fatigue. The adjustment in frictional force can be provided in many ways including as examples: by the addition of incremental weights and the removal of some if necessary until an optimum overall weight is achieved; by the introduction of a magnetic field perpendicular to the supporting surface, between the mouse and a supporting surface; or by a change in the coefficient of friction in the mouse-supporting surface interface such as at the mouse support protrusions; or by any combination thereof.

Figures 3 and 4 of the drawings are each a schematic side view of different embodiments of the invention illustrating the addition of a selectively positioned mouse housing weight increment of the order of about 20 to 50 grams, which is less than about half the total weight of a typical mouse and which operates to adjust the frictional force in movement between the mouse 100 and the pad or supporting surface 108.

In the embodiment of Fig. 3, where like reference numerals are used as in previous figures, the frictional force between the mouse 100 and the mouse pad 108 is adjustably increased by placing a localized group of small metal pellets 111 having a total weight of about 20 to 50 grams into the mouse housing. The weight of the group of pellets 111 is partially balanced by that of the position sensing circuitry 110 which is usually present in the vicinity of the protrusion 104. The pellets 111 typically may have a diameter of about 1/8 inch, similar to buck shot. They are usually placed into the housing after first having been placed into a small plastic wrapper to prevent their scattering to the mechanical and electrical components when inside the housing.

Other weight members may consist for example of one or a plurality of about 1 inch diameter metal discs that are cloth or plastic covered.

Figures 5 and 6 are each a schematic side view of different embodiments of the invention illustrating the use of a magnetic member on the mouse housing providing attraction to an underlying ferromagnetic sheet within the mouse pad.

ISSUES TO BE DECIDED

The issues to be decided are whether the Examiner has properly interpreted and applied the references cited in the obviousness rejections of independent Claims 20 and 21. The Claims dependent on those two independent Claims should also be considered under the same standard of obviousness.

GROUPING OF CLAIMS

Applicant contest the propriety of the rejections of Claims 20 and 21. Appellant's arguments submitted apply to independent Claim 20, and Claims 6-10 dependent thereon; and to independent Claim 21 and Claims14-17 dependent thereon.

ARGUMENT

Applicant respectfully submits that the Examiner's rejection of Claims 6-8, 10-11, 14-15 and 20-21 under 35 U.S.C. §103(a) as being unpatentable over Fukuhara, et al. (U.S. Patent 5,776,585) is in error.

Stated in general terms, the Examiner's final rejection in the Office Action contends that Fukuhara, et al. meets all of the elements of Applicant's claim 20 except that it does not expressly teach addition of a 20 - 50% increase in weight, but that the data disclosed in Table 2 renders that feature obvious.

Applicant respectfully disagrees. The single focus in Fukuhara, et al. is the mouse pad. Through the use of their novel mouse pad, Fukuhara, et al. assert that they can improve the controllability of a mouse serving as an input device through which data are input to a computer. "Controllability" is the feature that Fukuhara et al. emphasize throughout the reference. In their discussion of the "Prior Art," Fukuhara, et al. explicate the construction of the typical mouse including body, cover and ball. They then explain that the mouse is used with a pad. At Column 1. lines 25 to 28 Fukuhara. et al. State:

> *"A mouse pad 9 has been widely used for improving the controllability of the mouse as shown in FIG. 18. The mouse pad 9 is formed from such a material as a rubber, resin, reinforced glass or the like."*

The Fukuhara, et al. reference discloses at Column 1, lines 29 to 37 the problems with the use of certain materials as the pad:

> *"In the case of using the mouse pad formed from either a rubber or resin material, static electricity is generated between the mouse and the mouse pad, which causes the mouse pad to collect dust. Further the mouse pad is likely to collect tailings of a rubber eraser or a dirt* (sic). *As being repeatedly used, the mouse pad surface is gradually scraped off and the resultant waste is collected by a roller part of a mouse. As the mouse becomes soiled due to spills, there no practical method of cleaning it. "*

Fukuhara, et al. then proceed for the balance of Column 1, lines 38 to 67, and a portion of Column 2, lines 1 to 16 to explain that:

> *"A mouse pad formed from glass or a ground glass hardly causes the aforementioned problems such a static electricity nor dust collection."*

The aforementioned disclosures by Fukuhara, et al. clearly refute any assertion that the resin/rubber pads are <u>equivalent</u> to glass pads. (Emphasis added)

In addition to being formed from glass (preferably a crystallized glass, Column 3, lines 62 to 64), the Fukuhara, et al. mouse pad must have a rugged pattern surface having an average roughness ranging from 2 to 20 μ. The advantageous effect of their invention according to Fukuhara, et al. is that *"When the mouse ball is operated on this type of mouse pad* (i.e.: glass) *a*

frictional force generated therebetween serves to prevent the mouse ball from slipping." See: Column 3, lines 27 - 29. The requirement that the pad be formed solely from glass having a predetermined surface configuration is found consistently throughout the Fukuhara, et al. disclosure. These elements are defined specifically in their claims and thus form the very essence of their invention. The Examiner states that it would have been obvious to the person skilled in the art at the time the instant invention was made to utilize the apparatus of Fukuhara, et al. and then add any percentage of weight to said mouse input member. The Examiner supports the assertion by stating that *"since frictional force always increases due to said addition of weight, it is a design of choice to select a given weight increase percentage."* (Citations to the reference omitted)

Applicant respectfully submits that the rejection is without foundation. To reiterate, the Fukuhara, et al. invention is clearly restricted to glass pads; and along with that restriction, there is a further restriction that the surface of the glass pad MUST have a rugged pattern surface having an average roughness ranging from 2 to 20 μ. Applicant's pad as presently claimed is totally different, and there is no basis to assert that the properties possessed by the glass pad are equivalent to the properties and operation of Applicant's invention. Fukuhara et al. themselves state in their disclosure that they are not the same for the reasons given above.

Applicant further submits that the specification of Fukuhara, et al. must be read carefully as it does not disclose what the Examiner is contending that it discloses. Fukuhara et al. performed a series of comparative tests, the details of which are set forth in Columns 4 through 12 of the patent. Of particular interest to the present invention is the data found in Table 2 of Fukuhara et al., since it was relied upon by the Examiner as the foundation for his rejection.

Fukuhara, et al. prepared a number of comparative samples which are identified in Columns 5 and 6 of the patent. The purpose of the test performed on the samples was to determine the frictional force between the mouse ball and the different types of mouse pads (E1, Cl, C2...C9) as indicated at Column 7, lines 20-21.

Fukuhara et al. state at Column 5, lines 15 to 33:

(Experiment 1) Each controllability of a mouse operated on each of the mouse pads as the sample E1 and comparative samples C1 to C9 was evaluated. The controllability of the mouse was defined by values of each frictional force generated between the mouse ball and the mouse pad and between the operation surface of the mouse body (except the mouse ball) and the mouse pad.

As the frictional force between the mouse ball and the mouse pad becomes larger, the mouse ball is enabled to rotate accompanied with the movement of the mouse more closely without slipping on the mouse pad.

As the frictional force between the operation surface of the mouse body and the mouse pad becomes larger, it becomes more difficult to control the mouse.

Therefore good controllability of the mouse is assumed to be obtained under such condition that the frictional force between the mouse ball and the mouse pad is large, and the frictional force between the operation surface of the mouse body and the mouse pad is small. "

Applicant emphasizes that the results found in Table 2 of Fukuhara, et al. DO reflect frictional forces as defined by tensile strength measured in grams. The values presented DO NOT reflect the weights of the various mouse units used in the testing process as the Examiner asserts in the Official Action. Fukuhara, et al. do not disclose the addition of a separate weight to a mouse in their specification. Fukuhara, et al. clearly do not disclose different values of mouse weights in Table 2 as the Examiner contends. These distinctions, plus the fact that the instant invention is limited to a non-glass pad clearly renders the present invention as non-obvious. The clear fact drawn from a correct and proper reading of the Fukuhara et al. reference, is that contrary to what the Examiner is asserting, Fukuhara, et al. does not disclose the addition of weight to the mouse. Thus the "design of choice" argument presented by the Examiner has no supporting basis.

Fukuhara, et al. reiterate that the invention is limited to glass pads where they state at Column 7, lines 59-65 that the plastic or rubber pads were not as effective as their El sample.

In the "Response to Arguments" section (page 8) of the Official Action, the Examiner states: *"As it can be clearly seen from the referred table 2, different weights of a mouse tested were in a range between 45.5g. and 105.3g. It is well within the range claimed by independent claims 20 and 21."* Again, the values of Table 2 are NOT the weights of the mouse samples. The values in Table 2 are measurements of frictional force as defined by tensile strength (g.) exerted to the frictional force measurement equipment during rotation of the mouse pad.

The Examiner continues in the Response to Arguments section of his Final Rejection stating:

"For instance, it would be obvious to one of ordinary skill in the art at the time when the invention was made that mouse weight in a sample C5 can be easily achieved by adding (62.9-45.5)g = 17.4g. of weight to the mouse in a sample C1, which will increase in mouse weight of 17.4/45.5 = 0.38, i.e. 38%, which is within the range of 20 - 50 as claimed."

Applicant respectfully submits that the latter statement is clearly erroneous and is based upon a number of unwarranted assumptions. Beside the fact that the values presented in Table 2 which are designated as "mouse body" are not the actual weight of the mouse body as the Examiner contends, there is no explanation presented justifying why the Cl and C5 samples were arbitrarily selected and why the weights as presented in Table 2 should be subtracted and the percentage difference calculated and why Cl is the basis for calculating the percentage and not C5. As in the *Procrustean Bed*, the Examiner is shaping the disclosure to meet the limitations of Applicant's claims.

Applicant respectfully submits that the logic and support for the Examiner's "obviousness" rejection in the *Response to Argument* section of the Official Action is severely flawed as the direct result of the misinterpretation of what the Fukuhara, et al. reference discloses.

In summary there is no suggestion, directly or indirectly in the Fukuhara reference that discloses the addition of a 20% to 50% increase in the weight of the mouse input member, wherein the 20% to 50% increase in weight is in the range of 20 - 50 grams.

Note that Figure of the Fukuhara, et al. Reference depicts a mouse which embodies the "*Prior Art.*" Figure 3 of the present invention is a schematic side view of an embodiment illustrating the addition of a weight increment in the mouse. A comparison of these drawings graphically illustrates the non-obvious difference between them. There is no weight depicted in the prior art mouse as shown in Figure 19 of Fukuhara, et al. Nor is there any suggestion in the text of Fukuhara, et al. To add a weight to a mouse to produce an added frictional force component operating to produce a drag component that dampens any forces that would tend to upset a selected mouse position.

Applicant respectfully submits that the Examiner's rejection of Claims 6-8, 10-11, 14-15 and 20-21 under 35 U.S.C. §103(a) as being unpatentable over Fukuhara, et al. (U.S. Patent 5,776,585) in view of Hawley (4,628, 755) is in error.

Hawley discloses a mouse wherein a disk, shaft and wheel as component parts maintain contact with a surface. The "surface" is NOT defined as being "glass" as required by Fukuhara, et al. The magnets are used to provide augmented force in the contact area.

As the Fukuhara, et al. reference is not applicable for the reason stated above, which are hereby reiterated and incorporated by reference herein, there is not proper basis for combining these references.

In analyzing the Fukuhara, et al. and Hawley references cited, it is questionable whether and why the skilled artisan would look to supplement the teaching of the Fukuhara, et al. primary reference. The Examiner states as to Claims 9 and 16 - 17:

"*Fukuhara, et al. teaches weight addition (Column 7, lines 5 - 9) and a mouse pad 1 (Figure 3), but fails to expressly teach said drag type frictional force component is the result of the addition of a magnetic member. Hawley teaches weight addition to a mouse as a pair of spaced ring magnets shown in Figure 2.*"

Considering what are the essential features of each of the inventions in these patents, the skilled artisan would not instinctively take the weights of Hawley and add it to the overall teaching of the Fukuhara, et al. reference. The feature of Hawley that the Examiner is relying upon is the addition of a weight. Fukuhara, et al. mandates a pad made from a specific material as the heart of their invention. They have described the problems in the prior art with the use of other materials as the mouse pad. That is the foundation for their invention. There is no suggestion in Hawley that would make it unsuitable for the combination with the Fukuhara, et al. reference. The Hawley pad is the type of pad that Fukuhara, et al. disclose is improper.

The lack of appropriate commonality of the disclosures in the two inventions cited as prior art as applied to the present invention serves to rebut the rejection of the claims under 35 U.S.C. 103. Applicants submit that the prior art does not allow or support the conclusion of obviousness that the Examiner seeks to establish.

The references to Fukuhara, et al and Hawley contain disclosures that if and when combined, do not support each other. It appears from a review of the references that if and when an element in a mouse is included in Hawley, the Examiner is asserting that these elements, without more, are suitable to render obvious the present invention.

The references as cited, alone, or in combination, do not disclose or even imply the structure of the mouse of the present invention. In the rejection, the Examiner is selectively picking and choosing individual elements disclosed in the references to the exclusion of what both of the references as a whole teach to one skilled in the art. For example, to arrive at Applicants' invention, the person skilled in the art would have to randomly pick and choose among a myriad number of different features found in Hawley with the only guidance as to what to select being provided by Applicant's disclosure since Fukuhara, et al. does not teach the same type mouse. Based upon the skilled artisan's reading and knowledge of the systems disclosed and their respective objectives and how they are implemented, it is unlikely that the person skilled in the art would use Fukuhara, et al. in combination with Hawley and *vice versa.*

In order to analyze the propriety of the Examiner's rejections in this case, a review of the pertinent applicable law relating to 35 U.S.C. § 103 is warranted. The Examiner has applied the two references discussed above using selective combinations to render obvious the invention.

The Court of Appeals for the Federal Circuit has set guidelines governing such application of references. These guidelines are, as stated are found in Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ, 543, 551:

> When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than hindsight gleaned from the invention itself.

A representative case relying upon this rule of law is Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 USPQ 2d 1434 (Fed. Cir. 1988). The district court in Uniroyal found that a combination of various features from a plurality of prior art references suggested the claimed invention of the patent in suit. The Federal Circuit in its decision found that the district court did not show, however, that there was any teaching or suggestion in any of the references, or in the prior art as a whole, that would lead one with ordinary skill in the art to make the combination. The Federal Circuit opined:

> Something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. [837 F.2d at 1051, 5 USPQ 2d at 1438, citing Lindemann, 730 F.2d 1452, 221 USPQ 481, 488 (Fed. Cir. 1984).]

The Examiner has selected certain elements (e.g., the weights) from the cited Hawley reference for the sake of showing the individual elements claimed without regard to the total teaching of the two references.

The Examiner in his application of the cited references is improperly picking and choosing. The rejection is a piecemeal construction of the invention. Such piecemeal reconstruction of the prior art patents in light of the instant disclosure is contrary to the

requirements of 35 U.S.C. § 103.

> The ever present question in cases within the ambit of 35 U.S.C. § 103 is whether the subject matter as a whole would have been obvious to one of ordinary skill in the art following the teachings of the prior art at the time the invention was made. It is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. (Emphasis in original) In re Wesslau 147 U.S.P.Q. 391, 393 (CCPA 1965)

This holding succinctly summarizes the Examiner's application of references in this case, because the Examiner did in fact pick and choose so much of the Hawley reference to support the rejection and did not cover completely in the Office Action the full scope of what these varied disclosure references fairly suggest to one skilled in the art.

Further, the Federal Circuit has stated that the Patent Office bears the burden of establishing obviousness. It held this burden can only be satisfied by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the reference.

> Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." ACS Hosp. Sys., 732 F.2d at 1577, 221 USPQ at 933. [837 F.2d at 1075, 5 USPQ 2d at 1599.]

The court concluded its discussion of this issue by stating that teachings or references can be combined only if there is some suggestion to do so. In the present case, the skilled artisan, viewing the references would not be directed toward Applicant's device. There can reasonably be no system such as Applicants' emanating from the Fukuhara, et al. and Hawley references, since the basic systems of the two references are different. There is no proper basis to combine them.

Applicant has defined the invention clearly so as to avoid any ambiguities that may have existed in the wording heretofore. Applicant believes that the amended claims are in a form, Based upon the content of the prior art and the agruments presented which warrants their allowability. Such favorable action by this Honorable Board is respectfully solicited.

Respectfully Submitted,

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I hereby certify that this paper is being mailed via the United States Postal Service, first class mail, on the date indicated below addressed to the Commissioner of Patents and Trademarks, Post Office Box 1450, Alexandria, VA 22313-1450

Signature _____ Date: June 6, 2005
Thomas A. Beck

APPENDIX

A complete list of claims that were present in this application is included.

What is claimed is:

1. (Canceled) In a manually guided pointing operation in a display interface between a user and a computer, the improvement for position control comprising in combination: a structural intersection between a curved member on a manually moveable pointing member and a stationary surface, said curved member having a peripheral surface in tangential contact with said stationary surface, said curved member further having associated signal generating circuitry operable to move a cursor in said display in response to relative motion of said curved member with respect to said stationary surface at said intersection, and, a frictional force component in the plane of said tangential contact in said intersection.

2. (Canceled) In a manually guided pointing operation in a display interface between a user and a computer,
the improvement for position control comprising in combination:
a first type structural intersection between a curved member on a manually moveable pointing member and a stationary surface,
said curved member having a peripheral surface in tangential contact with said stationary surface,
said curved member further having associated signal generating circuitry operable to move a cursor in said display in response to relative motion of said curved member with respect to said stationary surface at said intersection,
at least one second type structural intersection between a protrusion on said manually moveable pointing member and a contact location on said stationary surface,
each said protrusion having a peripheral surface in contact with said stationary surface, and,
a frictional force component at said contact location.

3. (Canceled) The improvement of claim 2 where said protrusion is a member attached to said manually moveable pointing member and taken from a group of a bump and roller.

4. (Canceled) The improvement of Claim 1 wherein said manually movable pointing member and said stationary surface are a computer mouse and mouse pad combination.

5. (Canceled) The improvement of claim 4 wherein said addition of a frictional force component is the result of the addition of a 20 - 50 % increase of the weight of said computer mouse.

6. (Previously Presented) The improvement of Claim 20 wherein said 20 - 50% weight increase is in the range of 20 - 50 grams.

7. (Original) The improvement of Claim 6 wherein said 20 -50% weight increase is in form of a localized group of metal particles positioned within a housing of said mouse.

8. (Previously Presented) The improvement of Claim 6 wherein said 20 - 50% weight increase is in the form of a weight member affixed to a housing of said mouse.

9. (Previously Presented) The improvement of claim 20 wherein said drag type frictional force component is the result of the addition of a combination of a magnetic member positioned on the surface of said computer mouse that is adjacent to said computer mouse pad and a ferromagnetic sheet positioned in said mouse pad.

10. (Previously Presented) The improvement of claim 20 wherein said drag type frictional force component is the result of the addition of an increase in coefficient of of protrusions on the surface of said computer mouse that are adjacent to said computer mouse pad at the surface of said computer mouse pad.

11. (Previously Presented) The improvement of claim 20 wherein said drag type frictional force component is a result of at least one additional addition taken from the group of the addition of a combination of a magnetic member positioned on the surface of said computer mouse that is adjacent to said computer mouse pad and a ferromagnetic sheet positioned in said mouse pad, and an addition of an increase in coefficient of friction between protrusions on the surface of said computer mouse that is adjacent to said computer mouse pad at the surface of said computer mouse pad thereby increasing static and kinetic coefficients of friction between said mouse and said mouse pad.

12. (Cancelled) In a computer control interface involving a display and a manually guided mouse on a mouse pad,
the improvement for position control comprising in combination:
a sphere member in said mouse rotatably contacting said mouse pad,
said sphere member having associated signal generating circuitry operable to move a cursor in said display in response to mouse movement measured by rotation of said sphere member with respect to said mouse pad, and,
a frictional force component addition in the plane of said mouse pad opposing said mouse movement.

13. (Canceled) The improvement of claim 12 wherein said frictional force component addition is a result of at least one taken from the group of incremental weights totaling about 20 - 50 % of the weight of said mouse, the addition of a combination of a magnetic member positioned on the surface of said mouse that is adjacent to said mouse pad and a ferromagnetic sheet positioned in said mouse pad and an addition of an increase in coefficient of friction between protrusions on the surface of said mouse that are adjacent to said mouse pad.

14. (Previously Presented) The improvement of claim 21 wherein said frictional force component of said mouse in turn is the result of the addition of an about 20 - 50 % in weight increase of said mouse in turn is produced by about 20 - 50 grams of metal particles positioned in the housing of said mouse..

15. (Previously Presented) The improvement of claim 21 wherein said frictional force component is the result of the addition of about 20 - 50 % in the weight of said mouse, and said weight increase is produced by affixing to the top of the housing of said mouse an element comprising one or more cloth or plastic covered metal discs totaling about 20 - 50 grams in weight.

16. (Previously Presented) The improvement of claim 12 wherein said frictional force component is the result of the addition of a combination of a magnetic member positioned on the surface of said mouse that is adjacent to said mouse pad and a ferromagnetic sheet positioned in said mouse pad.

17. (Previously Presented) The improvement of Claim 16 wherein said magnetic member is adjustably positioned and said mouse is positioned on rollers away from said mouse pad.

18. (Canceled) In a manually guided pointing operation in a display interface between a user and a computer, the improvement for position control comprising in combination:
a structural intersection between a curved member on a manually moveable computer mouse and a mouse pad stationary surface,
said curved member having a peripheral surface in tangential contact with said stationary surface,
said curved member further having associated signal generating circuitry operable to move a cursor in said display in response to relative movement of said curved member with respect to said stationary surface at said intersection, and
providing a drag type frictional force component in the plane of tangential contact resulting from the addition of a 20 - 50% increase in weight of said computer mouse.

19 (Canceled) In a computer control interface involving a display and a manually guided mouse on a mouse pad,

the improvement for position control comprising in combination:

a sphere member in said mouse rotatably contacting said mouse pad,

said sphere member having associated signal generating circuitry operable to move a cursor in said display in response to mouse movement measured by rotation of said sphere member with respect to said mouse pad, and

a frictional force component addition in the plane of said mouse pad opposing said mouse movement, wherein, said frictional force component addition further is a result of at least one addition taken from the group of :

the addition of incremental weights totaling about 20 - 50% of the weight of said mouse,

the addition of a combination of a magnetic member positioned on the surface of said mouse that is adjacent to said surface of said mouse pad,

the addition of a ferromagnetic sheet positioned in said mouse pad and,

the addition of an incrrease in coefficient of friction between protrusions on the surface of said mouse member that are adjacent to said mouse pad.

20. (Currently Amended) In a manually guided pointing operation in a display interface between a computer and a manually movable mouse input member positioned by a user, said interface including an intersection between a curved member on said manually movable mouse input member and a mouse pad stationary surface,
said interface having associated signal generating circuitry operable to move a cursor in a display in response to relative motion of said curved member with respect to said mouse pad stationary surface, and wherein,
said curved member has a peripheral surface in tangential contact with said mouse pad stationary surface,
characterized by an improvement,
for positioning control of movement of said mouse input member on said mouse pad stationary surface, the addition of a 20 - 50% increase in weight of said mouse input member,
whereby said weight operates to enhance a drag type frictional force component, that resists said movement of said mouse on said mouse pad stationary surface.

Claim 21 (Currently Amended) In a computer control interface involving a display and a manually propelled guided relative movement of a mouse member on a surface of a mouse pad, said display having associated signal generating circuitry operable to move a cursor in said display in response to rotational movement of a sphere supporting member of said mouse member in contact with the surface of said mouse pad,

said manual propulsion and guidance in said relative movement of said mouse member on said surface of said mouse pad overcoming a drag type resistance frictional force component that operates to resist relative movement of said mouse over said surface of said mouse pad, characterized by

a positioning control enhancing increment, to said drag type resistance frictional force component that operates to enhance resistance to said relative movement of said mouse 12 member over said surface of said mouse pad,

said positioning control enhancing increment to said drag type resistance frictional force being control enhancing means selected from the group consisting of

the addition of 20 - 50% of the weight of said mouse member,

the addition of the combination of a magnetic member positioned on the surface of said mouse member adjacent to said surface of said mouse, and a ferromagnetic sheet positioned in said mouse pad and,

the addition of friction enhancing elements on protrusions situated on the surface of said mouse member that are adjacent to said mouse pad to increase said drag type resistance movement frictional force thereby increasing static and kinetic coefficients of friction between said mouse and said mouse pad.